Groshong® versus Open-ended PICCs
Valved or not: internal PICC diameter is the clue!

Janssens et al. (2006)
Groshong® PICCs

Prospective, descriptive studies on PICCs
from placement until removal at the University Hospitals Leuven
Coordination: vascular access team

Aussloos et al. (2007)
Open-ended PICCs

Population

Insertion

100% successful insertion, 70% in 1 or 2 attempts
100% had a correct catheter tip positioning

90% successful insertion, 75% in 1 or 2 attempts
Problems during insertion in 2 additional cases (patients 1 & 19) due to
Blood vessel spasm
Mechanical tear of the external part of the catheter

Catheter specification

20 valved Groshong® silicone PICC (Bard Inc):
All single lumen 4 French

18 open-ended silicone PICC (Bard Inc., BD, Cook Medical Inc.):
8 single lumen 4 French
9 single lumen 5 French
1 double lumen 5 French

Dwell time

Groshong® PICC
Total indwelling time: 890 days
Early removal due to:
Accidental dislodgement (n=1)
Infection (n=1)
Mechanical tear of the external part of the catheter (n=2)

Open-ended PICC
Total indwelling time: 808 days
Early removal due to:
Thrombophlebitis (n=1)
Mechanical tear of the external part of the catheter (n=2)

Complications

Accidental dislodgement
Mechanical tear
Phlebitis
Thrombosis
Systemic infection
Blood leakage at insertion side
Infusion problems
Blood aspiration hindrance

Complication in number of PICCs

Accidental dislodgement
Mechanical tear
Phlebitis
Thrombosis
Systemic infection
Blood leakage at insertion side
Infusion problems
Blood aspiration hindrance

Patient’s perception of PICCs compared to Peripheral & Central Venous Catheters

Discussion

In the population with Groshong® PICCs, no thrombosis or phlebitis were met. The median blood aspiration speed of the Groshong® and Open-ended PICC are comparable. More complications were seen among patients with open-ended PICCs, probably due to their underlying condition and to the administration of chemotherapy for cancer. Patients with cancer are more vulnerable for complications (Janssens et al., 2006; Aussloos et al., 2007)

Nurses mentioned problems with administering a great amount of fluids in a short time (> 0.5 l/h) with both type of catheters, valved and open-ended. Maybe polyurethane catheters with greater internal diameter could be the answer.

Conclusions

The present studies emphasised the safety aspects of the PICCs, from insertion until removal. Most complications were minor and similar to complications seen in other CVTs (Janssens et al., 2006; Aussloos et al., 2007)

PICCs are well accepted by patients and were preferred above other central venous and peripheral catheters.

Further investigation in larger groups of patients about (dis)advantages of different PICC types is necessary before drawing firm conclusions.

Vascular access team: Goddelieve Goossens RN, MSN, Christel Janssens, RN, MSN, Martine Jérôme, RN, MSN, Marguerite Stass MD, PhD christel.j.janssens@uz.kuleuven.be

Goggeleij Goossens RN, MSN, Christel Janssens, RN, MSN, Martine Jérôme, RN, MSN, Marguerite Stass MD, PhD christel.j.janssens@uz.kuleuven.be

UZ Leuven Herestraat 49 B - 3000 Leuven www.uzleuven.be tel. 0032 (0)16 33 22 11